

CLAIMS

1. A transmission apparatus using a polar modulation scheme, comprising:

5 an amplitude phase separation section that separates baseband modulation data into a baseband amplitude modulation signal and a baseband phase modulation signal;

a phase modulation section that modulates a high frequency carrier signal based on the baseband phase modulation signal and forms a high frequency phase modulation signal;

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a variable gain amplification section that is provided in a later stage of said phase modulation section and amplifies the high frequency phase modulation signal;

15 and

a high frequency power amplifier that is provided in a later stage of said variable gain amplification section and amplifies power of the high frequency phase modulation signal amplified by said variable gain amplification section,

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wherein said variable gain amplification section comprises:

a linear-log conversion circuit that linear-log converts the baseband amplitude modulation signal; and

25 a variable gain amplifier that amplifies the high frequency phase modulation signal based on the linear-log converted baseband amplitude modulation signal and a gain

control signal.

2. The transmission apparatus according to claim 1, wherein:

5 said variable gain amplification section further comprises an adder circuit that adds the baseband amplitude modulation signal linear-log converted by said linear-log conversion circuit and the gain control signal; and

10 said variable gain amplifier amplifies the high frequency phase modulation signal based on the signal added by said adder circuit.

3. The transmission apparatus according to claim 1,
15 further comprising a supply voltage supplying section that selectively supplies a supply voltage according to the baseband amplitude modulation signal and the gain control signal or a predetermined fixed supply voltage to said high frequency power amplifier according to first
20 and second operation modes, wherein:

in the first operation mode, the supply voltage changed according to the baseband amplitude modulation signal and the gain control signal is supplied to said high frequency power amplifier so that said high frequency
25 power amplifier operates as a nonlinear amplifier, and amplitude modulation is performed by said high frequency power amplifier according to the baseband amplitude

modulation signal and the gain control signal; and

in the second operation mode, the fixed supply voltage is supplied to said high frequency power amplifier so that said high frequency power amplifier operates as a linear amplifier, and amplitude modulation is performed by said variable gain amplification section according to the baseband amplitude modulation signal and the gain control signal.

10 4. A radio communication apparatus comprising:

a transmission processing section that comprises the transmission apparatus according to claim 1;

a reception processing section that demodulates a received signal;

15 an antenna; and

a transmission/reception switching section that switches between supplying a transmission signal from said transmission processing section to said antenna and supplying the received signal from said antenna to said
20 reception processing section.